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Goddard Space Flight Center

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# Inside Wallops

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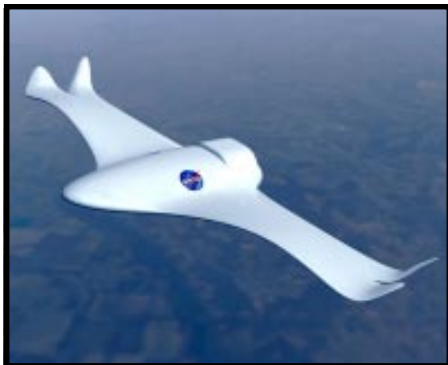
June 4, 2001

## ***Morphing Project' Will Apply Bird-Like Qualities To Aircraft***

Imagine an airplane with wings lined with tiny jets programmed to react to any flight situation. Imagine the wings imbedded with reactive materials that allow them to bend and twist like those of a bird in flight. Imagine the same airplane that can fly very fast and very slow and even hover.

Twenty years from now, airplane wings may be structured more like bird wings using advanced materials and systems now being investigated for air and spacecraft at Langley Research Center.

Researcher Anna McGowan heads the future-looking project. Called the "Morphing Project," McGowan's team of researchers and technicians is drawn from many different disciplines.



*Artist's Concept*

"Morphing essentially means extremely efficient adaptability enabling an airplane to adapt to a wide variety of flight conditions and even unforeseen problems very safely and very efficiently," McGowan said.

Expanding on the current research, McGowan believes that people will some day have personal aircraft that can take them to and from home in the same way automobiles are used today. But for that to happen, airplanes will need to be more adaptable — able to fit into garages — yet have a large enough wing span to fly safely over large distances.

"Twenty years into the future, we see airplanes becoming much more adaptable than they are today," McGowan said.

"Morphing technologies will enable greater versatility in the same airplane. We are working to make airplane wings more flexible, enabling them to fly more like birds, not to mimic nature, but learn from nature and its principles."

Some future aircraft may fly in flocks or "swarms." Comprised of very small, remotely-guided aircraft, the military applications are wide-ranging. Instead of sending one, large vulnerable aircraft with multiple crew members into a "hot" area for a surveillance mission, a swarm of micro-air vehicles could accomplish the same task without risk to a pilot, crew or aircraft.

Such a swarm also could aid in civilian fire fighting, disaster relief and search-and-rescue efforts.

Other applications are being researched using these versatile morphing materials. Because of their light weight and flexibility, they may be used as sensors for medical applications where they'll work to monitor a patient's heartbeat, or as tiny sensing probes to assist doctors in surgical procedures.

The same materials also can be placed in home appliances such as washers and dryers or dishwashers to reduce vibration. They may even be used in automobiles to aid in the deployment of airbags.

## ***Early Architect of the Apollo Moon Landing Dies***

Dr. Able Silverstein, a leading figure in 20th century aerospace engineering and director of NASA Lewis Research Center from 1961 to 1969, now the John H. Glenn Research Center Lewis Field died June 1. He was 92.

Dr. Silverstein began his career with the National Advisory Committee for Aeronautics (NACA), at Langley Research Center in 1929. In 1943, he transferred to the NACA Laboratory in Cleveland, where he performed pioneering research on large-scale ramjet engines.

## ***Wallops Shorts.....***

### ***Congratulations to -***

**Greg Smith**, NASA Safety Office, who received a software engineering degree from the University of Maryland-Eastern Shore during graduation ceremonies held May 26.

**Lucille Fox**, NASA Policy and Business Relations Office, received the Secretarial and Clerical Excellence Award and **Dave Pierce**, NASA University Class Projects Office, received a Customer Service Excellence Award during Quarterly Award ceremonies held May 31 at GSFC, Greenbelt.

## ***Message From the Administrator***

### ***"It Can't Happen to Me"***

The Centers for Disease Control and Prevention (CDC) recently reported that in 2000 nearly one out of every 10 U.S. residents received treatment in a hospital emergency room (ER).

Everyone thinks "It can't happen to me," but the odds of injury to you or a loved one are surprisingly high. Each of us needs to avoid hazards and unsafe behaviors, at work and especially at home. NASA has established a goal of zero mishaps in the workplace, and I encourage you to establish the same goal for yourself and your family.

Basic awareness and simple safety precautions can keep you out of the ER.

- Falls injured the most people. When the floor or sidewalk is wet or uneven, watch your footing. On stairs, always use the handrail. Note: slips, trips, and falls are also NASA's most common mishaps.

- Being hit by things was next. Basic common sense can keep you safe here. Watch where you're going and what you're doing. Be careful when using tools, doing home improvement tasks, lifting and carrying objects, and playing sports.

- Transportation-related accidents were a close third. On foot and on bike, be cautious and aware of traffic. When driving, consider what other drivers or pedestrians (or children) might do and be prepared. Don't allow yourself to be distracted and buckle up—safety belts will cut in half the likelihood of fatality in automobile accidents. Know and follow all the safety rules if you are driving, boating, or flying.

Most importantly, think about what you're going to do. Do some mental hazard analyses when planning activities, both on and off the job. Ask yourself "What could go wrong?" and identify the precautions you should take to avoid an accident. Simply thinking before acting could save your life or the lives of those you love.

This may sound like trivial advice, especially to the well-educated members of the NASA workforce, but remember, one in 10 U.S. residents ended up in the ER last year. Make sure you are not among the unfortunate.

*Please have a safe summer.*

**Daniel S. Goldin**

WFF Health Line

Tick-Borne Illnesses

Tick bites can cause illnesses such as Lyme disease and Rocky Mountain Spotted Fever and others that can make you sick, very sick.

With tick-borne illnesses, prevention begins with keeping the critters off your skin. Apply insect-repellent to any exposed skin, and reapply it frequently if you are sweating. For added protection, apply repellent to your shoes, socks, cuffs and pant legs.



When in thick brush, inspect your clothes for ticks. Inspect your head and body thoroughly when you get in from the field.

Removal of a tick from your skin as soon as possible after it has attached itself can prevent subsequent illness. The easiest method is to grasp the tick with fine tweezers as near as you can get to the surface of your skin. Pull steadily but gently from your skin. You may want to save the tick in a small jar for later identification. Check to see whether the mouth parts broke off in the wound. If they did, seek medical attention to get them removed.

After removal, most people will get a local reaction to the bite. This consists of a small, red, itchy bump that can persist for one to two weeks. Occasionally, a small lump will form at the site of the bite. These local reactions do not require treatment.

The rash associated with the onset of Lyme disease, usually appears 3 to 30 days after the bite. The lesion begins as a non-tender, non-itching red area at the site of the bite and expands in a ring-like fashion over a period of days to weeks often with clearing of the central area inside of the expanding ring. If you develop this type of lesion, even if you don't recall a tick bite, you should see a physician as soon as possible.

All of the tick-borne illnesses can present fever and generalized aching, often with swollen lymph nodes and many with skin rashes.

The secondary rash of Lyme disease appears similar to the primary rash, but appears at various places on the body other than the site of the tick bite. The rash of Rocky Mountain Spotted Fever has a measles-like appearance.

Anyone who develops a flu-like illness that lasts more than three or four days, especially if accompanied by a rash or a severe headache, should consult a physician. Prompt treatment will result in rapid recovery, while delay in beginning treatment can result in severe illness and, in some cases, death.

For more information, call the Health Unit, x1266.

Public Seminar Series  
Summer 2001

The Virginia Institute of Marine Science, in collaboration with the Citizens for a Better Eastern Shore, sponsor a series of public seminars that focus on the ecology and natural resources of the Shore and related environments.

Upcoming seminars include:

**June 6** - Tomato cultivation and water quality on the Eastern Shore. Dr. Mark Luckenbach, Professor of Marine Science; Director, Eastern Shore Laboratory, Virginia Institute of Marine Science, College of William and Mary

**July 11** - The *Phragmites* invasion: Now what do we do? Dr. Randolph Chambers, Associate Professor of Biology; Director, Keck Environmental Field Laboratory, College of William and Mary

**August 1** - Arsenic in your drinking water and Chesapeake Bay: What's the big deal? Dr. James Sanders, Professor and Chair; Department of Ocean, Earth & Atmospheric Sciences, Old Dominion University

**September 5** - 40 years of bald eagle recovery on Delmarva. Dr. Brian Watts, Research Assistant Professor; Director, Center for Conservation Biology, College of William and Mary

The seminars are held at the E.S. Laboratory, Virginia Institute of Marine Science, Wachapreague, VA. Seating for 65 people is on a first-come-first-serve basis. All seminars are free and begin at 7:30 p.m. They last for approximately one hour. Coffee and light refreshments are provided.



Dial 1333

Wallops Flight Facility  
Emergency Number  
Fire \* Ambulance  
Police \* Chemical



Summer's Coming  
by Ted Wilz

The average temperature for May of 62.6 degrees was almost exactly what our normal temperature for the month normally is. No new record high or low temperatures were set. The warmest temperature was a reading of 85 degrees that occurred on May 12, just prior to some thunderstorms moving into the area. The coolest temperature was a reading of 43 degrees during the early morning hours on May 7.

Although we had 12 days with measurable rainfall, instead of the normal 10, we again fell a little short of the monthly average. We recorded 2.91 inches of precipitation, instead of our normal 3.23 inches. The end of the month was a wet one, however, as 10 of the last 14 days had rainfall. May went from a warm, dry trend at the beginning of the month, to a cooler, wetter ending, but, average-wise, was a fairly typical May.

Average daily high temperatures during July in the 80's are command to the Eastern Shore, with inland locations often pushing into the 90's. Most of the time, an afternoon sea breeze moderates our local temperature and keeps us 6 to 10 degrees cooler than some of our nearby locations. On four different occasions during July, the mercury has hit 100 degrees at Wallops, most recently in 1993. Average low temperatures are usually in the mid to upper 60's throughout the month, with a 51 degree reading that occurred on July 2, 1965 being the all-time record low.

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